

WHAT IS CLAIMED IS:

- 1 1. A computer-implemented method of planning orthopaedic surgery,
2 comprising:
3 providing a library of templates representing orthopaedic prostheses;
4 displaying a patient image showing anatomical features that are relevant for
5 the orthopaedic surgery being planned;
6 scaling the patient image according to user input;
7 displaying over the patient image a geometrical construct defined by a
8 plurality of interrelated geometric parameters;
9 allowing a user to reconfigure the geometrical construct by adjusting the
10 geometric parameters according to the anatomical features of the underlying patient
11 image; and
12 selecting at least one template from the library in accordance with the
13 geometric parameters set by the user.
- 1 2. The method of claim 1, wherein the patient image is an X-ray image.
- 1 3. The method of claim 1, wherein the geometric parameters include lengths
2 and/or angles.
- 1 4. The method of claim 1, and further comprising, before the selecting:
2 displaying a further patient image showing anatomical features that are
3 relevant for the orthopaedic surgery being planned;
4 scaling the further patient image according to user input;
5 displaying over the further patient image a further geometrical construct
6 defined by a plurality of interrelated further geometric parameters; and
7 allowing a user to reconfigure the further geometrical construct by adjusting
8 the further geometric parameters according to the anatomical features of the
9 underlying further patient image;
10 and wherein the selecting at least one template is in accordance with the
11 geometric parameters and the further geometric parameters set by the user.

1 5. The method of claim 4, wherein the patient image is an anterior-posterior view
2 and the further patient image is a medio-lateral view.

1 6. The method of claim 1, wherein the geometric parameters are adjusted
2 according to anatomical features of a femur so as to allow selection of a template
3 representing a femoral component of a hip prosthesis.

1 7. The method of claim 1, wherein the geometric parameters are adjusted
2 according to anatomical features of a pelvis so as to allow selection of a template
3 representing an acetabular component of a hip prosthesis.

1 8. The method of claim 4, wherein the geometric parameters and the further
2 geometric parameters are adjusted according to anatomical features of a knee joint so
3 as to allow selection of templates representing femoral and tibial components of a
4 knee prosthesis.

1 9. A computer-implemented method of planning orthopaedic surgery,
2 comprising:
3 providing a library of templates representing orthopaedic implants;
4 displaying first and second patient images showing anatomical features that
5 are relevant for the orthopaedic surgery being planned;
6 scaling the first and second patient images according to user input;
7 displaying over the first patient image a first view of a geometrical construct,
8 the geometrical construct being defined by a plurality of geometric parameters
9 interrelated in three dimensions;
10 displaying over the second patient image a second view of the geometrical
11 construct;
12 allowing a user to reconfigure the geometrical construct according to the
13 anatomical features of the underlying patient images, by adjusting geometric
14 parameters adjustable in the first and second views; and
15 selecting at least one template from the library in accordance with the
16 geometric parameters set by the user.

1 10. The method of claim 9, wherein the first patient image is an anterior-posterior
2 view and the second patient image is a medio-lateral view.

1 11. The method of claim 9, wherein the geometric parameters are adjusted
2 according to anatomical features of a femur so as to allow selection of a template
3 representing a femoral component of a knee prosthesis.

1 12. The method of claim 9, wherein the geometric parameters are adjusted
2 according to anatomical features of a tibia so as to allow selection of a template
3 representing a tibial component of a knee prosthesis.

1 13. The method of claim 9, wherein the geometric parameters are adjusted
2 according to anatomical features of a femur so as to allow selection of a template
3 representing a femoral component of a hip prosthesis.

1 14. A computer program product carrying machine-readable instructions for
2 implementing a method of planning orthopaedic surgery, comprising:
3 providing a library of templates representing orthopaedic prostheses;
4 displaying a patient image showing anatomical features that are relevant for
5 the orthopaedic surgery being planned;
6 scaling the patient image according to user input;
7 displaying over the patient image a geometrical construct defined by a
8 plurality of interrelated geometric parameters;
9 allowing a user to reconfigure the geometrical construct by adjusting the
10 geometric parameters according to the anatomical features of the underlying patient
11 image; and
12 selecting at least one template from the library in accordance with the
13 geometric parameters set by the user.

1 15. The computer program product of claim 14, wherein the patient image is an X-
2 ray image.

1 16. The computer program product of claim 14, wherein the geometric parameters
2 include lengths and/or angles.

1 17. The computer program product of claim 14, and further comprising, before the
2 selecting:

3 displaying a further patient image showing anatomical features that are
4 relevant for the orthopaedic surgery being planned;

5 scaling the further patient image according to user input;

6 displaying over the further patient image a further geometrical construct
7 defined by a plurality of interrelated further geometric parameters; and

8 allowing a user to reconfigure the further geometrical construct by adjusting
9 the further geometric parameters according to the anatomical features of the
10 underlying further patient image;

11 and wherein the selecting at least one template is in accordance with the
12 geometric parameters and the further geometric parameters set by the user.

1 18. The computer program product of claim 17, wherein the patient image is an
2 anterior-posterior view and the further patient image is a medio-lateral view.

1 19. The computer program product of claim 14, wherein the geometric parameters
2 are adjusted according to anatomical features of a femur so as to allow selection of a
3 template representing a femoral component of a hip prosthesis.

1 20. The computer program product of claim 14, wherein the geometric parameters
2 are adjusted according to anatomical features of a pelvis so as to allow selection of a
3 template representing an acetabular component of a hip prosthesis.

1 21. The computer program product of claim 17, wherein the geometric parameters
2 and the further geometric parameters are adjusted according to anatomical features of
3 a knee joint so as to allow selection of templates representing femoral and tibial
4 components of a knee prosthesis.

1 22. A computer program product carrying machine-readable instructions for
2 implementing a method of planning orthopaedic surgery, comprising:
3 providing a library of templates representing orthopaedic implants;

4 displaying first and second patient images showing anatomical features that
5 are relevant for the orthopaedic surgery being planned;
6 scaling the first and second patient images according to user input;
7 displaying over the first patient image a first view of a geometrical construct,
8 the geometrical construct being defined by a plurality of geometric parameters
9 interrelated in three dimensions;
10 displaying over the second patient image a second view of the geometrical
11 construct;
12 allowing a user to reconfigure the geometrical construct according to the
13 anatomical features of the underlying patient images, by adjusting geometric
14 parameters adjustable in the first and second views; and
15 selecting at least one template from the library in accordance with the
16 geometric parameters set by the user.

1 23. The computer program product of claim 22, wherein the first patient image is
2 an anterior-posterior view and the second patient image is a medio-lateral view.

1 24. The computer program product of claim 22, wherein the geometric parameters
2 are adjusted according to anatomical features of a femur so as to allow selection of a
3 template representing a femoral component of a knee prosthesis.

1 25. The computer program product of claim 22, wherein the geometric parameters
2 are adjusted according to anatomical features of a tibia so as to allow selection of a
3 template representing a tibial component of a knee prosthesis.

1 26. The computer program product of claim 22, wherein the geometric parameters
2 are adjusted according to anatomical features of a femur so as to allow selection of a
3 template representing a femoral component of a hip prosthesis.

1 27. The computer program product of claim 14 or claim 22, wherein the machine-
2 readable instructions are stored in a recording medium.

1 28. The computer program product of claim 14 or claim 22, wherein the machine-
2 readable instructions are conveyed on a transmission medium.

1 29. A computer system for implementing a method of planning orthopaedic
2 surgery, comprising:
3 memory in which is stored:
4 a library of templates representing orthopaedic prostheses; and
5 patient images showing anatomical features that are relevant for the
6 orthopaedic surgery being planned;
7 a display device operable to display one of the patient images; and
8 a processor operable to:
9 scale the displayed patient image according to user input;
10 display over the patient image a geometrical construct defined by a
11 plurality of interrelated geometric parameters;
12 allow a user to reconfigure the geometrical construct by adjusting the
13 geometric parameters according to the anatomical features of the displayed patient
14 image; and
15 select at least one template from the library in accordance with the
16 geometric parameters set by the user.

1 30. The computer system of claim 29, wherein
2 the display device is further operable to display a further one of the patient
3 images; and
4 the processor is further operable to:
5 scale the displayed further patient image according to user input;
6 display over the further patient image a further geometrical construct
7 defined by a plurality of interrelated further geometric parameters;
8 allow a user to reconfigure the further geometrical construct by
9 adjusting the further geometric parameters according to the anatomical features of the
10 displayed further patient image; and
11 select at least one template from the library in accordance with the
12 geometric parameters and the further geometric parameters set by the user.

1 31. A computer system for implementing a method of planning orthopaedic
2 surgery, comprising:

3 memory in which is stored:
4 a library of templates representing orthopaedic prostheses; and
5 patient images showing anatomical features that are relevant for the
6 orthopaedic surgery being planned;
7 a display device operable to display a first and a second of the patient images;
8 and
9 a processor operable to:
10 scale the displayed patient images according to user input;
11 display over the first patient image a first view of a geometrical
12 construct, the geometrical construct being defined by a plurality of geometric
13 parameters interrelated in three dimensions;
14 display over the second patient image a second view of the geometrical
15 construct;
16 allow a user to reconfigure the geometrical construct according to the
17 anatomical features of the underlying patient images, by adjusting geometric
18 parameters adjustable in the first and second views; and
19 select at least one template from the library in accordance with the
20 geometric parameters set by the user.

1 32. The computer system of claim 29 or claim 31, wherein the library of templates
2 is stored such that it can be accessed by the processor via the Internet.

1 33. The computer system of claim 29 or claim 31, wherein the patient images are
2 stored in an archive comprised within a Picture Archiving and Communication
3 System.